

A NEW SPECIES OF FRESHWATER CRAB (SUNDATHELPHUSIDAE) FROM CAPE YORK PENINSULA

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A new species of freshwater sundathelphusid crab, *Holthuisana* (*Austrothelphusa*) *tigrina*, from a single locality on Cape York Peninsula, northern Queensland is described. It resembles *H. (A.) transversa* (Martens, 1869) from which it is distinguished by its distinctive striped colour, carapace proportions, relatively large eyes, and features on the telson, third maxilliped and inferior orbital margin. □ *Crustacea, Sundathelphusidae, Holthuisana, new species, Queensland, freshwater, taxonomy, biology.*

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Australian sundathelphusid crabs have been revised by Riek (1951), Bishop (1963) and briefly reviewed by Bott (1970). Bishop (1963) recognised *H. (A.) agassizi* (Rathbun, 1905), *H. (A.) angustifrons* (A. Milne Edwards, 1869), *H. (A.) raceki* (Bishop, 1963), *H. (A.) transversa* (Martens, 1869), *H. (A.) valentula* (Riek, 1951), and *H. (A.) wasselli* (Bishop, 1963). Bott (1970) considered only two of these valid, *H. (A.) angustifrons* and *H. (A.) transversa*. He suggested that the other four fall within the range of variation of *H. (A.) angustifrons* but formally synonymised only *H. (A.) agassizi*. Furthermore his findings were based on only 25 specimens from a very restricted range of localities. Presumably on the basis of Bott's work, Williams (1980) and Horwitz (1990) listed only two Australian species. I have examined the Queensland Museum's extensive collection of sundathelphusids and support Bishop (1963) in recognising six species.

Holthuisana (A.) tigrina sp.nov. was first brought to my attention by Mr Leigh Bulley in 1991. Two live specimens were sent to the Queensland Museum for identification and were immediately recognisable as new to science on the basis of their distinctive striped colouration and external morphology. Mr Gordon Staples provided further specimens, including females and small males, from the type locality.

MATERIAL AND METHODS

All material examined is housed in the Queensland Museum. The description is based primarily on the male holotype with paratypic variation included as comments within parentheses. Measurements were made using vernier

calipers and line drawings with the aid of a camera lucida. The first pereopods are referred to as chelipeds. Abbreviations used in text: CB, carapace breadth; QM, Queensland Museum; SWQ, southwest Queensland.

SYSTEMATICS

Holthuisana (Austrothelphusa) tigrina sp.nov. (Figs 1-6)

MATERIAL EXAMINED

HOLOTYPE: QMW18822, ♂ (35.4mm CB), headwaters of One Mile Ck, a tributary of the Alice River, 15°27'S, 143°16'E, Apr 1991, L. Bulley.

PARATYPES: QMW17162, ♂ (36.0mm CB), same collection data as holotype; QMW19027, 7♂♂ (21.5 - 29.7mm CB), 5♀♀ (21.8 - 25.1mm CB), same locality data as holotype, Apr 1990, G. Staples.

DESCRIPTION

Cephalothorax. Dorsal carapace strongly convex longitudinally, moderately convex transversely; breadth c.1.25 x length, c.2.1 x depth; dorsum punctate, glabrous; front slightly concave; anterolateral regions lacking striae, margins feebly carinate, with V-shaped notch between exorbital angle and epibranchial margin; supraorbital and exorbital angles entire, inferior orbital angle distinctly crenulate; posterolateral regions converging, straight, with distinct oblique striae; posterior margin more or less straight; epigastric regions poorly defined; cervical grooves poorly defined; gastric groove distinct. H-shaped; posterior metagastric region rugose; urogastric region well defined; cardiac and intes-

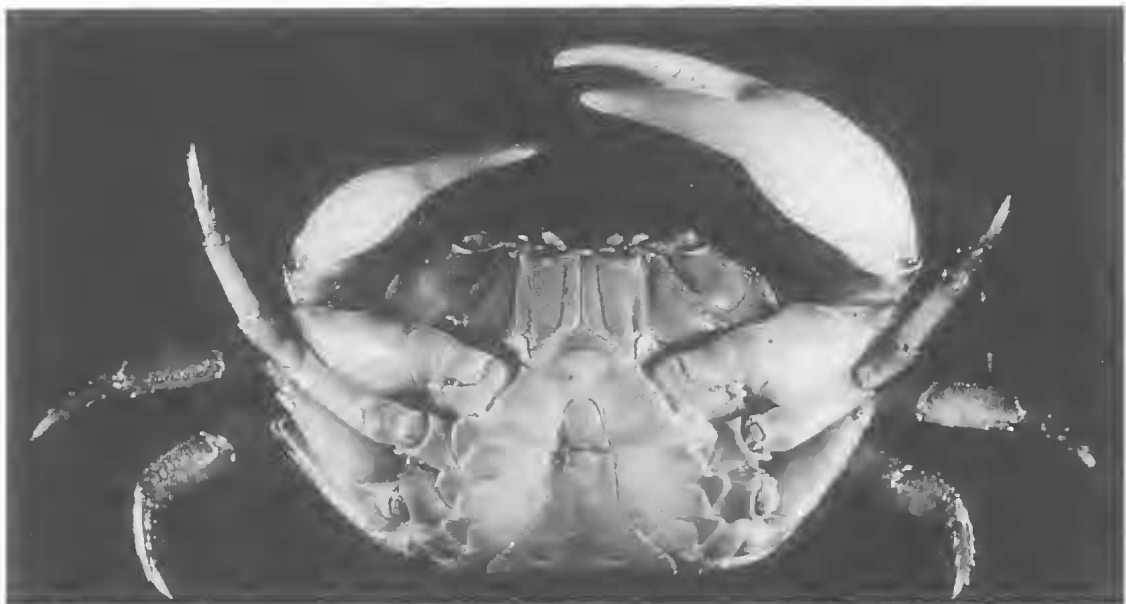
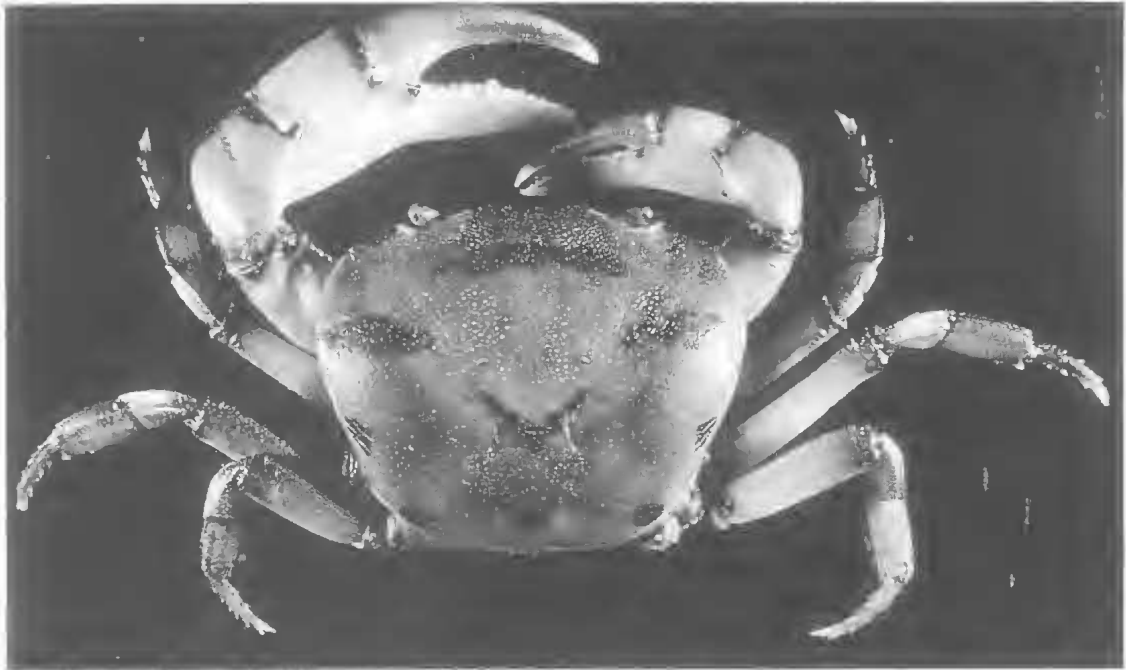


FIG.1. *Holthuisana (Austrothelphusa) tigrina* sp. nov., holotype ♂, QMW18822. Dorsal and ventral views. Scale divisions in mm.

tinal regions poorly defined; branchial regions uninflated; subhepatic regions smooth; suborbital regions slightly rugose; pterygostomial regions rugose anteriorly with anterior mesial margin

crenulate; posterior margin of epistome smooth, median triangle distinct, tuberculate. Eyes large, eyestalks distally expanded to accommodate large cornea. Third maxillipeds of typical shape

for genus; punctate; ischial suture well defined along length, deep, narrow.

Sternum glabrous except for sparse setae on somites 2–3; well developed concentric striae across somites 2–4 (poorly developed or absent in smaller paratypes), somites 5–8 distinctly punctate; sulcus between somites 2–3 obsolete medially and laterally, formed into broad submedial depressions (sulcus variable in small paratypes); sulcus between somites 3–4 also obsolete medially and laterally, formed into deep broad submedial depressions (poorly developed in small paratypes), well separated from abdominal cavity.

Chelipeds. Smooth; dimorphic (isomorphic in female and small male paratypes). Major cheliped with fingers gaping, pollex dentate along opposing edge, teeth short, blunt, one tooth larger than rest, positioned c. halfway along opposing edge, dactylus similarly dentate with large

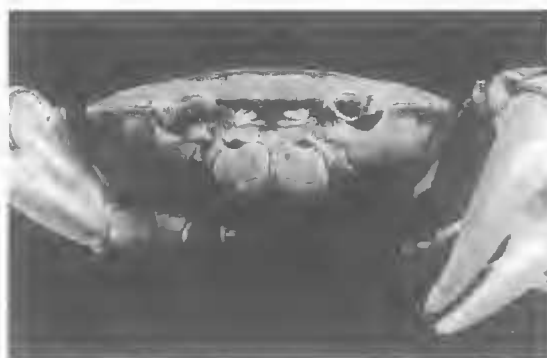


FIG. 2. *Holthuisana (Austrothelphusa) tigrina* sp. nov., holotype ♂ (35.4mm CB), QMW18822. Carapace frontal view.

tooth slightly proximal to that of pollex, pollex strongly tapering in distal half, ventral manus

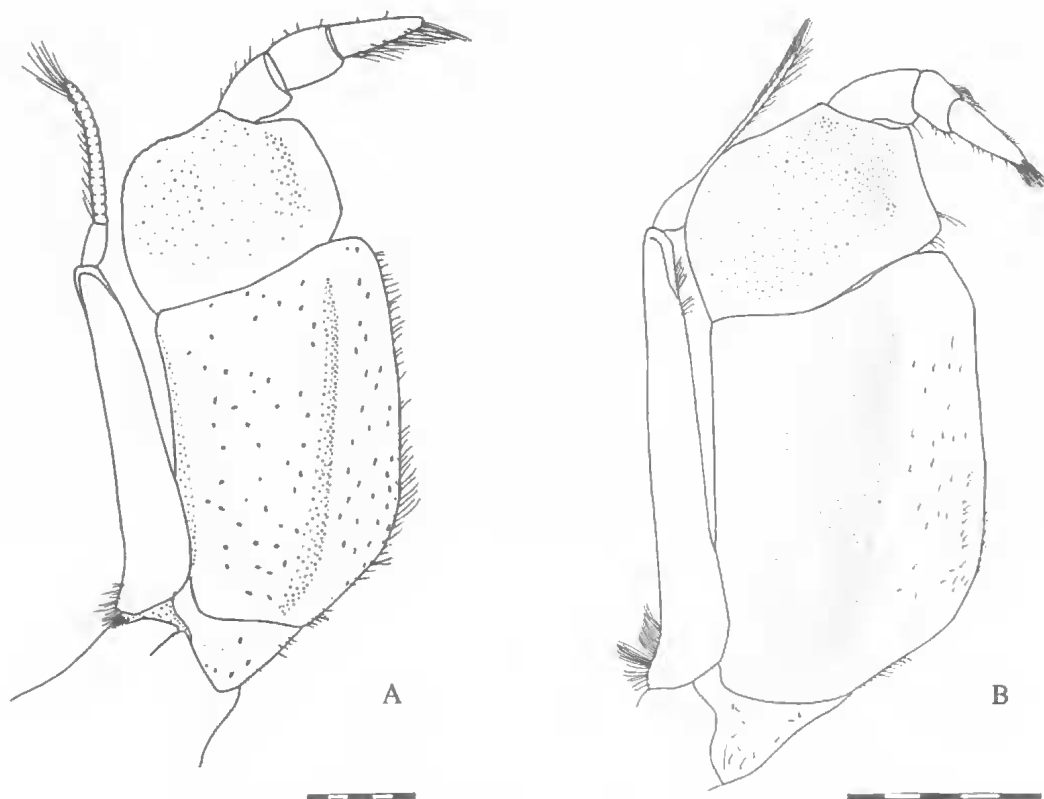


FIG. 3. A, *Holthuisana (Austrothelphusa) tigrina* sp. nov., paratype ♂, QMW17162; B, *Holthuisana (Austrothelphusa) transversa* (Martens, 1869), QMW11331, Mt Leonard Stn, SWQ. Third maxilliped. Scale divisions in millimetres.



FIG.4. *Holthuisana (Astrothelphusa) tigrina* sp.nov., holotype ♂, QMW18822. Chelipeds.

longer than pollex, dactylus slightly arched, carpus with large dorsomesial spine and smaller ventromesial spine, merus with subterminal transverse groove dorsally and subterminal transverse carina ventrally. Minor cheliped with fingers slender, touching on distal half, both fingers bearing small teeth, pollex length equal to length of ventral manus, carpus and merus similar to major cheliped

Abdomen. Abdomen punctate; tapering abruptly from third to fifth segments; first three segments very broad; abdomen length c.1.2 x basal breadth (1.0 - 1.2 in paratypes); telson damaged (bell-shaped, length about equal to breadth in male paratypes); penultimate segment damaged (breadth c.1.3-1.5 x length in male paratypes). Pleopods without unique features for subgenus.

COLOUR

Carapace tan with conspicuous black markings persistent after alcohol preservation; transverse

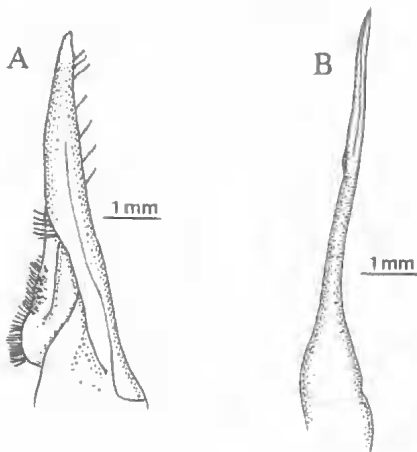


FIG.5. *Holthuisana (Astrothelphusa) tigrina* sp.nov., holotype ♂, QMW18822. A, ventral left first pleopod; B, ventral left second pleopod.

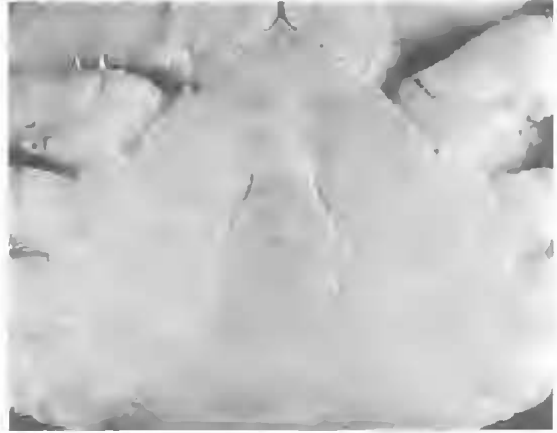


FIG.6. *Holthuisana (Astrothelphusa) tigrina* sp.nov., paratype ♂ (36.0mm CB), QMW17162. Sternum and abdomen.

epigastric band, pair of anterolateral bands, metagastric band (occasionally interconnects with anterolateral bands), two pairs of posterolateral blotches, and an intestinal blotch. Chelipeds cream with black distal band on merus, carpus, and superior palm; superior carpus and fingers tinged with purple. Merus of ambulatory legs yellow, distal segments purple. Eyestalks with mesial, longitudinal, black stripe.

BIOLOGY

The new species was collected from a small seasonal creek, c.200km from the sea. This creek only flows during the wet season (November to April), at which time the crabs number in their thousands in shallow water (L. Bulley, pers.comm.).

Gordon Staples has observed that during the wet season the crabs are relatively docile when handled and are very active during the day. Aquatic predators are absent and they are often very conspicuous on clean sandy substrates where their colour pattern is of little value for camouflage. In the dry season they occupy sandy burrows amongst the roots of fringing paperbark trees (*Melaleuca* sp.). Other freshwater crabs occur in the same area but are much rarer and are seen in the order of one specimen for every 100 specimens of the new species (one small specimen of *H. (A.) agassizi* was collected with paratypes of the new species by G. Staples).

H. (A.) tigrina was first introduced to the Sydney aquarium trade in 1991. It has since sold steadily under the market name 'tiger crab' along with another freshwater crab marketed as the

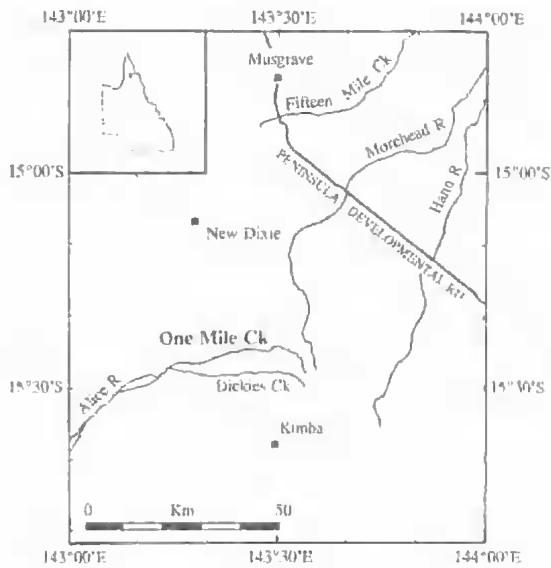


FIG. 7. Location of One Mile Ck, the type locality of *Holthuisana (Austrohelphusa) tigrina* sp. nov.

'porcelain crab' (N. Haliwell, pers. comm.). The 'porcelain crab' from the Reedy St George River north of Mt Carbine is an interesting variant of *H. (A.) agassizi* (Rathbun, 1905) in which the broad, centrally-constricted, median carapace band, often seen in the species, is very clearly defined and unmottled.

DISTRIBUTION

Known from the type locality, One Mile Creek, a tributary of the upper Alice River, Mitchell River catchment (Fig. 7).

ETYMOLOGY

Latin *tigrinus*, spotted like a tiger, and referring to the conspicuous black markings on the carapace and chelipeds.

SYSTEMATIC POSITION

The new species is most similar to *H. (A.) transversa* (Martens, 1869), and differs from other Australian species in the following combination of characters: anterolateral regions of the carapace lacking distinct striations, not inflated, and without a distinct anterolateral tooth; frontal margin of carapace slightly concave or straight; carapace moderately deep, depth about half maximum carapace breadth.

H. (A.) tigrina can be distinguished from *H. (A.) transversa* by: the telson being as long as broad

whereas in *H. (A.) transversa* it is distinctly broader than long; the median suture on the ischium of the third maxillipeds much narrower and more sharply defined; the inferior orbital angle distinctly crenulate whereas in *H. (A.) transversa* it is entire; the carapace much narrower, breadth c. 1.25 x CL as opposed to c. 1.40 in *H. (A.) transversa*, and less strongly convex longitudinally; posterolateral carapace margins converging much more strongly in *H. (A.) tigrina*; the eyes much larger with the eyestalks distally expanded to accommodate the large cornea in the new species.

The distinctive striped colouration of *H. (A.) tigrina* sp. nov. also readily distinguishes it from *H. (A.) transversa*, and other Australian species.

SURVIVAL STATUS

Vulnerable, due to its apparently restricted distribution. Although reportedly abundant during the wet season in One Mile Ck, the area is currently leasehold pastoral land and lies largely within the Alice River Mining Field (T. Pratt, Cook Shire Council, pers. comm.). Gold mining is a foreseeable threat to the habitat of the species.

ACKNOWLEDGEMENTS

I am indebted to Leigh Bulley for bringing this interesting crab to my attention and donating live specimens to the QM. Mr G. Staples provided biological information and additional specimens from the type locality, as well as material of the 'porcelain crab'. Mr Norm Haliwell, Riverside Aquariums gave details on the marketing of the species in Sydney. Peter Davie of the Queensland Museum is thanked for his constructive comments on the manuscript. Tina Pratt, Cook Shire Council, provided information on current land zoning of One Mile Ck. Jeff Wright and Gary Cranitch printed the photographs.

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